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MONTHLY REPORT - AUGUST 1980

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HONOLULU LABORATORY
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TIBURON LABORATORY
PACIFIC ENVIRONMENTAL GROUP

MONTHLY REPORT - AUGUST 1980

STATUS OF PUBLICATIONS

Published

Hunter, John R. and Carol Kimbrell. 1980. Early life history of Pacific mackerel, Scomber japonicus. Fishery Bulletin, U.S. 78 (1): 89-101.

Shomura, Richard S. (editor). 1980. Summary report of the Billfish Stock Assessment Workshop, Pacific Resources. NOAA Technical Memorandum NMFS-SWFC-5, 58 p.

Weihs, Daniel. 1980. Respiration and depth control as possible reasons for swimming of northern anchovy, Engraulis mordax. Fishery Bulletin, U.S. 78(1): 109-117.

Approved by Center Director

Lasker, Reuben, Jose Pelaez and R. Michael Laurs. The use of satellite infrared imagery for describing ocean processes in relation to spawning of northern anchovy (Engraulis mordax). For consideration for publication in Remote Sensing of Environment.

Dotson, Ronald C. Fishing methods and equipment of the U.S. west coast albacore fleet. For consideration for publication as a NOAA Technical Report.

Administrative Reports

Polovina, Jeffrey J. and Robert B. Moffitt. Commercial bottom handline fishery in the Northwestern Hawaiian Islands, 1959-77. SWFC Admin. Rep. No. H-80-11.

Translation

Tanaka, Tamotsu. 1980. Atlas of skipjack tuna fishing grounds in southern waters, 1979 fishing season (May 1979-April 1980). Tohoku Reg. Fish. Res. Lab. (12 p. text; 19 charts). (English transl. by Tamio Otsu, 1980, 48 p., Transl. No. 48; available SWFC, NMFS, NOAA, Honolulu, HI 96812.)

HONOLULU LABORATORY

INSULAR RESOURCES INVESTIGATION

Otolith Growth Increments Studied in Skipjack Tuna Larvae

Michael Walker, graduate student at the University of Hawaii (UH) Zoology Department and an East-West Center grantee, and Fishery Biologist James H. Uchiyama have been examining the otoliths of skipjack tuna (Katsuwonus pelamis) larvae reared at the Kewalo Research Facility. The skipjack tuna larvae were sampled every second day to 12 days old by Thomas K. Kazama and Sharon Hendrix, Research Assistants. A relationship of one growth increment per day was observed for larvae to 4 days old; examination of the older larvae will continue.

Northwestern Hawaiian Islands (NWHI) Research Activities Dealing with Lobster Continue

Dr. Jeffrey J. Polovina, Statistician, revised the relationship between lobster size and contribution to reproduction to update the information provided in the Spiny Lobster Draft Fishery Management Plan (FMP), as a result of new data and discussions with Dr. Bruce Phillips of the Commonwealth Scientific and Industrial Research Organization (CSIRO) of Australia during his visit to the Honolulu Laboratory (HL). Polovina and Darryl T. Tagami, Research Assistant, began to examine the Ursin-Anderson multispecies model as a possible model for the NWHI ecosystem. Nancy C. Green, a National Marine Fisheries Service (NMFS) Junior Fellow, worked with Polovina on lobster and ciguatera data analysis.

Research Assistant James L. Prescott initiated a tagging experiment off the leeward side of Oahu to estimated the growth of a juvenile lobster population.

PELAGIC RESOURCES INVESTIGATION

Progress Made in Study of Tuna Energetics

Chris Boggs, University of Wisconsin, began working this month with Dr. Andrew E. Dizon, Fishery Biologist, on tuna energetics at Kewalo Research Facility as part of a collaborative National Science Foundation (NSF) project involving the California Institute of Technology, the University of Michigan, and the NMFS. The current objective is to obtain a long-term measure of energy expenditure by

skipjack tuna. Changes in weight and energy density of tuna will be monitored at different swimming speeds and feeding levels. These measures can be independently compared with rates derived from respirometry and hydrodynamic studies.

Initial length-weight regressions calculated for fresh, dead skipjack tuna from several deliveries were compared with starved fish from the same delivery. This provided a rough estimate of weight loss with time, which can be correlated to energy expenditure. Equipment and procedures for weighing live tuna were designed and tested, permitting a direct measure of the initial weight of each fish.

The food consumed by individual tuna among schools of six to eight fish has been successfully monitored in feeding trials. This will permit an assessment of energy intake under controlled feeding conditions. Equipment and procedures for controlling swimming speed have also been tested. When fish were force-fed weights to cause them to swim faster, some weights were retained to 5 days while other weighted fish continued to feed normally.

An ecologically important part of this study involves calculating the most efficient swimming speed for tunas searching for food in the pelagic environment. Other work conducted by NMFS will provide some measures of food availability in the central Pacific. These data will be the basis for estimating the optimum swimming speed for tunas. The theoretical swimming speeds will then be compared with the results of NMFS tracking studies. The potential applications should aid the tuna industry in predicting migratory behavior and migration speeds as food resources vary seasonally.

Monitoring of Aggregation Buoys Continued

Donald C. Aasted, Fishery Methods and Equipment Specialist, and Dr. Richard E. Brock, Hawaii Institute of Marine Biology (HIMB), UH (the latter under support from the UH Sea Grant (UHSG) program), are working cooperatively to quantify the effectiveness of the aggregation buoys anchored off Oahu by the State of Hawaii Division of Fish and Game (HDFG). Information from the study will be used to develop a colonization model of fish communities around anchored aggregation devices. Observations are being made from the NMFS research vessel, Kaahele'ale. This month, "U" buoy, located on the northeast (windward) side of Oahu, was replaced with a modified buoy equipped with an underwater "drape". Aasted and Brock are continuing to monitor "R" and "S" buoys on the southwest (leeward) side of Oahu.

Scientific Activities at the Hawaiian International Billfish Tournament (HIBT) Transferred to the Pacific Gamefish Foundation (PGF)

The HL, after 19 years of data collecting and providing informational services at HIBT, transferred its activities to PGR. Fishery Biologist Heeny S. H. Yuen, who has been responsible for the HL's program at HIBT for the last 7 years, attended the tournament at Kona, Hawaii, to assist Dr. Richard W. Brill, Scientific Director of PGF in the transition. The Board of Governors of HIBT presented a plaque to Yuen in appreciation "for his valuable assistance at its tournaments and for his contributions to the knowledge and lore of sportfishing both in Hawaii and Pacific-wide."

Foreign and Hawaiian Longline Catches Summarized

During August, members of the Tuna Stock Assessment Task performed assignments related to tuna data management and fishery monitoring. These included (1) computing total landings and vessel statistics for the foreign longliners based at Pago Pago, American Samoa, using data for 1977 and 1978; (2) preparing domestic effort statistics for Hawaiian tuna longline vessels for inclusion in the billfish FMP; and (3) summarizing Japanese tuna and billfish catch and effort statistics using 1° squares around Guam, in support of analyses by Dr. Steven Amesbury of the University of Guam, who is developing policy alternatives for the billfish FMP dealing with the Guam Fishery Conservation Zone (FCZ). These projects were undertaken by Fletcher V. Riggs, Marian Y. Y. Yong, Nathaniel T. Shippen, Mark A. Scheele, and Gordon W. Tribble under the guidance of Dr. Jerry A. Wetherall, Task Leader. In addition, Weatherall and Yong have been revising their manuscript on double-tagging methodology, intended for publication soon.

Activities Continue on Studies of Pelagic Resources

Dr. A. Dizon and Martina K. K. Queenth, Research Assistant, continued to research the temperature preference of yellowfin tuna (Thunnus albacares). The training of the new yellowfin tuna "H" in the "dumbbell" tank progresses well.

* * * * * * * * * *

The tuna rearing team under Research Assistant Thomas Kazama awaits the next live tuna delivery. All systems are in readiness to spawn the fish and rear the larvae. Queenth monitored ova of tuna collected by Henry M. Kishinami, Research Assistant, at Hawaiian Tuna Packers. Ova diameters are still large enough for a viable spawn.

* * * * * * * * * *

Fishery Biologist Walter M. Matsumoto prepared a preliminary cruise plan for squid fishing in Hawaiian waters to be conducted with the University of Hokkaido, January-March 1981. He also completed a revision of his manuscript, "Anchored fish aggregating devices in Hawaiian waters."

Skipjack Tuna Landings Relative to Long-Term-Average Decline

The Hawaiian landings of skipjack tuna during August 1980 were estimated at 436.6 metric tons (MT), which is 163.9 MT below the landings for the same period in 1979 and 108.3 MT below the 1964-79 long-term average for the same period. The cumulative landings from January through August were estimated at 1,664.1 MT, which is 726.3 MT below last year's landings for the same period and 1,094.6 MT below the 1964-79 long-term average for the same period.

Recreational Billfish and Green Sea Turtle Data Processed

DMTS personnel entered the recreational billfish data using the DEC-10 system 1022. Three report programs were written to summarize catches by area, catch and effort by area, and weights by date.

Data from radio-tracking studies of the green sea turtle Chelonia mydas were keypunched and verified. With assistance from Dizon, computer programs to analyze the data were written.

Report on Foreign Vessel Observer Program Reviewed

Alan R. Everson, Observer, boarded the Japanese trawler, Kitakami Maru, on August 9 at Midway. The vessel is fishing on the seamount inside the U.S. 200-mile FCZ. Ray F. Sumida, Fishery Biologist, reviewed the final draft report on the evaluation of the National Foreign Fishing Vessel Observer Program for Mary DiGuillan (Fx54).

LA JOLLA LABORATORY

Coastal Fisheries Resources Division

Study of Glycogen Concentrations in Larval Fish Completed

Fishery Biologists Charles O'Connell and Pedro Paloma completed their study of histochemical indications of glycogen in the livers of robust and emaciated, or starving, anchovy larvae. Glycogen, which is stored primarily in the liver, is an immediate energy reserve known to decline rapidly under starvation conditions. Ocean samples of anchovy larvae, previously judged to be robust or emaciated on the basis of histological conditions, were sectioned and stained for the presence of glycogen by the periodic acid-Schiff (PAS) procedure. Emaciated larvae showed lower liver glycogen than robust larvae, but only among smaller sizes. For larvae that were fed or starved in the laboratory the association was evident among both the smaller and the larger sizes. X^2 values showed that the association was also weaker for the ocean larvae. These differences appear to be consistent with differences in food availability in the ocean and between the ocean and laboratory. It is concluded that for some purposes the PAS staining test might be sufficient to characterize the condition of larval fish samples.

MULTISPECIES TAXONOMY

Scientists Identify Samples Taken on Coastal Marine Mammals Cruise

Fishery Biologist John Butler is analyzing samples taken with a large surface net, the 2-meter manta net on the Coastal Marine Mammals cruise this summer; the net is an excellent collector of juvenile fishes. Sample volumes ranged from 21 ml to 3200 ml per $10^3 m^3$ water filtered. The average catch was 550 ml per $10^3 m^3$. Largest plankton volumes were taken inshore off Point Conception and consisted of large euphausids.

Fish catches ranged from 2-465 per $10^3 m^3$ water filtered. The average catch was 71 per $10^3 m^3$. Fish ranged in size from 7 mm to 150 mm. The largest fish collected were 150 mm grunion. Other large fish collected were 110 mm Pacific saury, and a 120 mm sablefish. Of the approximately 3600 fish collected, nearly 2000 were late larval and juvenile rockfish. Juvenile bocaccio, short-belly, yellow-tailed, splitnosed, and half-banded rockfish have been identified from the samples.

Otoliths used to Obtain Information on Growth in Fishes

According to John Butler, Fishery Biologist, otoliths (or ear bones) are being removed to obtain age-length and growth information on these species of juvenile rockfish, Pacific mackerel, jack mackerel, Pacific saury and sablefish. Pacific mackerel appear to grow at the same rate in the field and in the laboratory (Hunter and Sanchez, In Perss). Pacific saury have well defined daily increments and should provide growth data through the largest fish. Rockfish otoliths will require considerable etching before reading.

SURVEY SYSTEMS DEVELOPMENT AND EVALUATION

Preparation of Hydrographic Sections for CalCOFI Atlas Continues

More than 70% of the approximately 380 oceanographic sections and charts planned for an atlas of mean seasonal conditions in the California Current have been completed, according to Oceanographer Larry Eber. Eber is checking out programs needed to plot the sections of standard deviation and distributions of selected parameters on constant density surfaces. Ron Lynn, Oceanographer, is preparing a report based on some completed materials for presentation at EPOC and at the CalCOFI conference in October.

COMMERCIAL AND RECREATIONAL FISHERIES RESEARCH FOR MANAGEMENT

Anchovy Data from 1977-1980 Trawl Surveys Examined and Compared

Susan Picquelle, Statistician, examined anchovy data collected from trawl surveys from 1977 through 1980. The data was prepared for further analysis to compare various parameters over the years. Programs were written to record the data so that each year's data have equivalent codes and the same format. Summary data files were formed, containing environmental data and the frequency distribution of female anchovies in classes according to the condition of their ovaries. Logit analysis will be applied to this data in an attempt to find relationships between spawning frequency and other parameters of the school and physical conditions.

Assessment Method of Non-Fishery Removals Developed

Normally, fishery biologists use stock assessment methods to analyze the impact of fishery removals from a resource; other forms of non-natural mortality are ignored as being either negligible or intractable. A simple method for including loss of fish to power plant intakes was developed by Alec MacCall, California Fish and Game Biologist at the SWFC. The short-term (intra-cohort) percentage reduction in adult abundance due to entrainment of larvae is given by 100%*(1-exp (-sum9F(i)*t(i))) where removal rates F(i) are estimated by the average daily entrainment of stage i larvae divided by the average daily abundance of stage i larvae in the source waters, and t(i) is the length of time a larva spends in stage i. The advantage of this method is that all variables can be estimated easily, and quantities such as the natural mortality rate of larvae need not be known.

Assessment of long-term effects requires greater knowledge of the production curve. In cases where the production curve is unknown, the common fishery assumption that net productivity is maximal when the rate of fishery removals (F) equals the rate of natural mortality (M) may be useful, with appropriate reservations. Assuming a logistic production curve, the percentage reduction from carrying capacity is 100%*(1-(F/(2*M))), where F is the sum of all non-natural removal rates including both larvae and adults. While this method is based on some strong and rather questionable assumptions, it provides a "yardstick" for stock assessment where none has existed previously. These methods will be presented at CalCOFI, where they can be critically reviewed.

Range of Anchovy Spawning Fluctuates According to Abundance

Anchovies and other clupeoids characteristically expand and contract their ranges with changes in abundance. According to A. MacCall, this tendency can be shown to result from maximizing the individual's reproduction when spawners cannibalize their young, and density independent survival decreases toward the periphery of the range. While the stock-recruitment relationship may be a Ricker curve for any individual parcel of water, the overall relationship is not. One form of the overall relationship between stock (S) and recruitment (R) is R=a*S*exp(-b*S**C), which differs from the Ricker curve by the added parameter c. The exponential argument incorporates the relationship between stock size and effective stock density; c is characteristically less than unity. The resulting stock-recruitment curve differs from the Ricker curve in that it has a more extended peak and a more gradual descending limb. One of the consequences of this geographic model is that higher productivity will result from fishing the center rather than the periphery of the stock. The model will be presented by MacCall at the CalCOFI Conference in October.

Economics Paper Prepared for Fisheries Management Workshop in November

Dr. Daniel Huppert, Supervisory Industry Economist and Task Leader, began preparation of a manuscript on economic analysis for anchovy management to be presented at a workshop entitled "Economic Analysis in Fisheries Management Plans." The workshop, to be held at the University of Deleware in November 1980, is being sponsored by Sea Grant. The main objective is to review and evaluate the economic methods of analysis found in existing fishery management plans.

* * * * * * * * * *

Industry Economist Jane McMillan compiled landings data for southern California "wetfish vessels" covering the past 20 years. These data, which are preparatory to a multispecies model of fisheries management, include catch in tons landed and ex-vessel value for anchovy, jack mackerel, Pacific mackerel, Pacific bonito, bluefin tuna, Pacific sardine and squid for vessels in Port Hueneme and San Pedro.

* * * * * * * * * *

Economist Cynthia Thomson completed a draft manuscript which summarizes the seasonal, areal and climographic characteristics of the partyboat survey data and compares these with comparable data from CF&G partyboat logbooks. Thomson sought to find biases in the sample data which might require that the sample data be weighted in order to extrapolate to the population. She found that summer anglers were over-represented in the sample taken in regions north of San Diego County. In San Diego, fall and spring anglers were over-represented while summer and winter stocks were under-represented. Since species composition in catch is associated with season, and other characteristics of anglers may vary with seasons, a seasonal adjustment will need to be computed before results from analysis of the survey can be extrapolated.

Cruise Plans for 1981 CalCOFI Year Prepared

Fishery Biologists Jim Thrailkill and Gary Stauffer worked out cruise patterns and modified ship schedules for the upcoming 1981 CalCOFI survey year, in order to meet the primary need of estimating anchovy spawning biomass by larva census and egg production methods. The commitment to conduct the egg/trawl survey in 1981 is in response to the Pacific Fishery Management Council's request that the two methods be calibrated before switching to the egg production procedure of estimating anchovy biomass. Present plans include two egg/trawl surveys: one in February and one in April. The Jordan will have primary responsibility for occupying Calvet and Bongo stations in the coastal

area, and the CF&G charter will collect trawl samples of adult anchovy in conjunction with their sonar survey. The Scripps research vessel, New Horizon, will conduct plankton surveys in the offshore regions.

Stauffer called two meetings this month with CFRD staff, CF&G biologists and SIO oceanographers to review the early cruise plans. These groups gave their general approval to the proposed schedules and patterns.

California Sablefish Research Cruise Planned

The Northwest and Alaska Fisheries Center (NWAFC) in Seattle is preparing for the upcoming sablefish research cruise aboard the NOAA research vessel, Chapman, off California. Steve Hughes, Chief Scientist from NWAFC and Jim Hardwick, CF&G Monterey, are planning the research. The cruise will consist of three 10-day legs. On the first leg, beginning about October 20 in San Diego, a pot index will be made to measure relative density of sablefish in the Patton Escarpment region. Scientists will tag fish and gather biological information. The second leg will compare gear selectivity of two styles of blackcod traps, some with and some without escapement ports for small fish. The third leg will conduct a pot index survey in the area of the Farallon Islands off San Francisco. Dr. Gary Stauffer will participate in the first cruise.

University of Michigan Professor Completes Sabbatical Leave as NRC/NOAA Research Associate at Center

The National Research Council/NOAA Research Associate at the Southwest Fisheries Center during the past year has been Dr. Paul W. Webb, on sabbatical leave from his position as Professor of Natural Resources at the University of Michigan at Ann Arbor, Michigan. On August 8, Dr. Webb left to return to his post at the University after completing an intensive program of research concentrated on the vulnerability of anchovy larvae to predation and locomotor adaptations and evolution in ecologically distinct groups of fish.

In examining the vulnerability of the northern anchovy larvae to predation, Dr. Webb measured changes in burst swimming performance during development to evaluate escape capabilities of larvae from pursuit and filtering-type predators (including nets). The second series of experiments concentrated on the opposite extreme of bite-type predators. Dr. Webb was aided in these experiments by R. T. Corolla, an internee from Southampton College, New York, receiving research training at the Southwest Fisheries Center.

The importance of burst swimming performance by anchovy larvae to their avoidance of predators was evaluated by Dr. Webb using an artificial "predator" which simulated actions of certain non-particulate, non-discriminant fish feeders. The model was a towed plankton net, for which considerable data exist relating to sampling bias and net avoidance. Day-night catch ratios were used to estimate avoidance (escape probabilities), and these were compared with speed and endurance relations estimating escape capabilities. Dr. Webb found that speed and endurance could explain a large portion of increasing escape probabilities during early larval development, and hence much of the size-dependent selectivity of towed plankton nets. However, the results also suggested that response thresholds to capture might change during development.

The second set of experiments determined such responses to attacks, where the clown fish, Amphipicon percula, was used as a model to study larval vulnerability to particulate, discriminating bite-type predators. The percentages of larvae responding to and escaping from attack increased linearly with total length. The probability of escape was directly related to the probability of responding to an attack, with 24 -30% of larvae responding too late to evade capture.

The two series of experiments, according to Dr. Webb, appeared to provide a reasonable basis for the rapid decrease in vulnerability of anchovy larvae during early development. They also provided simple methods which can be used to evaluate interaction problems, as, for example, vulnerability effects due to age and starvation, effects of alternate predators and/or prey items.

Dr. Webb was also interested in the unique behavior and morphology of flatfishes which utilize the bottom to improve their swimming ability. He designed experiments to test the ability of one species, the sanddab, Citharichthys stigmaeus, to utilize the sea bottom in this way, and concluded that contact with the sea bottom would indeed enhance the fast start performance of flatfish.

Other research by Dr. Webb included observations on the use of median fins by dolphinfish, Coryphaena hippurus. It seems that these fish are unusual in having a lunate caudal fin, presumably for cruising, and also very large dorsal and anal fins, probably to maintain good turning and acceleration abilities. Dr. Webb reached the conclusion that the superior maneuvering ability of dolphinfish (due to the presence of the large anterior median fins in addition to the lunate caudal fin) permitted the penetration of more labyrinthine "cluttered" habitats, such as beneath flotsam. Their foraging habits beneath floating debris is the basis of a major fishery.

Dr. Webb completed five manuscripts on his research during his stay at the Center.

Oceanic Fisheries Resources Division

TUNA AND BILLFISH RESOURCES PROGRAM

Program Biologist Participates in International Game Fish Association Meeting

Jim Squire, Fishery Biologist, traveled to Kailua, Kona, Hawaii on August 8-11 to participate in the first annual meeting of the Trustees and Representatives of the International Game Fish Association (IGFA).

Squire addressed the meeting, describing the progress of the Center's billfish tagging and angler survey projects. His presentation included preliminary results of studies to determine migration patterns and rates for striped marlin in the eastern Pacific and black marlin in the southwestern Pacific.

A preliminary tabulation of data from billfish angler survey forms for 1979 was made just prior to Squire's departure for the meeting, and the results presented. These results indicate that for the recreational striped marlin fishery around the tip of Baja California, CPUE was up slightly to 0.42 fish per day in 1979 while the southern California CPUE was up only slightly over 1978 estimates. Black marlin CPUE for the Queensland, Australia area declined, as did sailfish CPUE off Acapulco, Mexico. CPUE for blue marlin in the Hawaiian Island area showed only a slight increase in 1979.

IGFA has actively supported the tagging and billfish angler survey projects in the past and their continued support was requested. In particular, a request was made of IGFA representatives from the Pacific to encourage the billfish clubs in their area to distribute, collect and return survey forms for the 1980 survey to be started in December. The subject of international management of Pacific billfish resources was mentioned and discussed by the Trustees and Representatives. Management efforts for billfish by Australia and the U.S. were reviewed and discussed by the representatives.

Dr. Richard Brill, the new director of research for the Pacific Game Fish Foundation (PGF), the research arm of the Hawaiian International Billfish Association, spoke to the group regarding further activities. These will include active support of the Center's Cooperative Marine Game Fish Tagging and Pacific International Billfish Angler Survey Programs in the Hawaiian Islands and other locations throughout the central and southwestern Pacific.

Japanese Longline Catch/Effort Statistics Available on Computer Tape

In past years, Japanese longline catch/effort statistics have been compiled by the Tuna/Billfish Resources Program from tabular listings in annual publications. These data were then coded and key-punched for inclusion in Program data bases. As a result of the joint efforts of Mathematician Al Coan, of the SWFC and Susumu Kume of the Japanese Far Seas Fisheries Research Laboratory, these data are now being made available to the Program on computer tape.

The acquisition of the 1978 Japanese longline catch/effort statistics was the first such transfer of data to the program. Computer-to-computer transfer of data will save much time and effort and will shorten the time required to make updated data bases available for analysis.

Puerto Rico Sampling Program Reviewed

Routine sampling of foreign-caught Atlantic tunas for size and species composition has been conducted since 1974 by Eugene Holzapfel, Biological Technician stationed in Mayaguez, Puerto Rico. In July, Al Coan, Mathematician, traveled to Puerto Rico to review sampling procedures. During Coan's trip, fish were sampled at the Van Camp Cannery in Ponce. Sun Harbor, Neptune Packing, Bumble Bee and Starkist canneries were also visited to discuss sampling problems with cannery officials. Information collected from this trip will be used to further streamline sampling procedures in Puerto Rico.

U.S. Atlantic Tuna Catches Sampled

Catches by U.S. purse seiners fishing in the Atlantic Ocean have been routinely sampled for size-composition since 1967. In 1980, six (6) U.S. vessels fished in the eastern and western Atlantic and caught an estimated 5700 MT of yellowfin, skipjack and bigeye tuna. Al Coan, Mathematician and Robert Nydam, Computer Programmer, have summarized the sampling coverage through August 1980 as follows:

	Vessels sampled	# of fish samples	# of fish sampled	Tons (MT) sampled
Yellowfin	2	5	299	211
Skipjack	2	4	200	192
Bigeye	1	1	17	2

Blackfin tuna catches from shrimp trawlers fishing in the Gulf of Mexico were also sampled (2 samples, 100 fish). The blackfin tuna catches were made with pole-and-line gear.

Scientists Prepare for 32rd Annual Tuna Conference

Doyle Hanan of California Department of Fish and Game prepared a letter announcing the 32nd Annual Tuna Conference, and sent additional letters of invitation to potential panelists and session convenors. In addition to the usual contributed papers, session topics include tuna and tuna fisheries in the western Pacific, and biological aspects of tuna fisheries. A panel discussion on "National zones of influence on the political aspects of tuna fisheries" is also planned.

Tuna Vessels Participate in FAX Advisory Program

During JUly 1980, 23 tuna seiners contributed synoptic weather data to the NMFS FAX advisory program. A total of 132 weather observations were reported via NMFS-licensed radio station WWD. The table below compares program participation in July 1979 and 1980.

	July 1979	1980
Number of vessels with equipment	46	45
Number of vessels reporting	24	23
Number of weather observations reported	198	132
Number of XBT observations reported	2	0
TOTAL OBSERVATIONS	200	132

Leading Participants

Leading all program participants in July were the captains and crews of the Claire P. and Top Wave. We wish to thank these and all other contributors to the FAX program.

MARINE MAMMAL ASSESSMENT AND MONITORING PROGRAM

Pembroke Aircraft Evaluated for use in Marine Mammal Research

LCDR Wayne Perryman made two coastal marine mammal survey flights with scientists from U.C. Santa Cruz, in order to evaluate the Pembroke aircrafts as a platform for line transect sampling and for vertical

photography of marine mammals in order to obtain length measurements. Information on line transect surveys and aerial photography is needed to develop techniques for stock assessment of Delphinus in the eastern tropical Pacific. A standard aircraft evaluation report is in preparation. Unfortunately, bad weather made the photographic experiment impossible.

Observer Data Forms Completed for 1981 Season

Computer Specialist Frank Ralston has coordinated a review of the observer data forms for use during the 1981 season. The new forms will be printed in September, and an observer training session has already been held to explain their use.

Ralston has also trained three new data editors, and work progresses on the editing of observer data. Information from approximately 25 trips have been received to date.

Lonnie Dick, Biological Aid has been assisting Frank Ralston in training the data editors. She has also compiled three sets of observer training manuals for staff use, which are important to researchers since they detail the "how" and "what" of collected data. Frank Ralston will maintain the manuals.

TDP Activities Assigned to Specific Computer Accounts

Computer Specialist Chuck Oliver has completed the assignment of research tasks to specific computer accounts and the reorganization of files, bundles and tapes on these accounts. In addition he has implemented ADP's file directory facility (RUNJOB.MN). Advantages to the staff should include: more accurate information concerning costs on various tasks, projects, etc. (i.e. mortality monitoring, stock assessment); reduced costs for tape and disk storage, as the reorganization reduced the number of physical reels used from 189 to 56 and created a savings of $1197 per month; and, reduced storage costs and easier access to files through the use of RUNJOB.MN which has cost approximately $3000 a month.

Joe Caruso, Computer Programmer, prepared and delivered a talk on data transfer procedures via cassette tapes using the UCSD Burroughs and VAX systems and the INFONET computer system. The ability to move data among the systems allows users to take advantage of the least expensive facility.

Phil Tarantino, UCSD student, has completed a Data Base Format Manual that provides an interface to users between collection forms and data base configuration. He has also completed a cruise-by-cruise list detailing which forms observers have used, which allows researchers to group data over years for particular analysis. Finally, he has updated all the existing reference manuals used by the Porpoise Program. The entire set will reside in B-316, which is being converted to a data area for the Marine Mammal Program.

2nd Monk Seal Recovery Team Meeting Held in La Jolla

The second meeting of the Monk Seal Recovery Team was held at the SWFC (La Jolla, California) on August 8-10. Dr. Douglas DeMaster, Operations Research Analyst, participated as a member of the team. DeMaster presented two draft documents: one reviewed current information about the reproductive rate of Hawaiian monk seals, and the other compared the techniques used to estimate population size of monk seals. Other presentations included: review documents on the behavior, physiology, feeding, and population ecology of monk seals; documents concerning the conflicts between man and monk seals; and the whereabouts of specimen material (primarily skeletal material). The recently completed research at Lisianski was also discussed, in light of the DEIS for critical habitat. The next meeting will be held in Honolulu, September 25-27, 1980.

Shown in the accompanying photograph are members of the Monk Seal Recovery Team. From left to right: Gene Nitta, Southwest Region Representative at Honolulu; Rob Shallenberger, Refuge Manager, U.S. Fish and Wildlife Service; Robert DeLong, NMFS Marine Mammal Laboratory, Seattle, Washington; Bill Gilmartin, Chairman and Head of the Monk Seal Recovery Team; Douglas DeMaster, NMFS La Jolla Laboratory; Al Katekaru, Division of Fish and Game, Department of Land and Natural Resources, Honolulu, Hawaii; Gerald Kooyman, Scripps Institution of Oceanography; Leighton Taylor, Director of Waikiki Aquarium, Honolulu, Hawaii; Robert Brownell, U.S. Fish and Wildlife Service, National Fish and Wildlife Service Laboratory, Washington, D.C.; Ed Shallenberger, Sea Life Park, Honolulu; and Ancel Johnson, U.S. Fish and Wildlife Service, Anchorage, Alaska.

New Research Program Initiated to Analyze Kill Data

A new subtask under Task Development Plan - 008 has been initiated to evaluate various procedures that could be used to estimate rates of mortality from data collected on porpoises killed incidental to the tuna fishery. A contract is being negotiated with SIO to conduct the research. "Least-squares" and maximum likelihood analyses will be programmed to interface with the existing data bases. Assumptions of each technique will be tested and a sensitivity analysis will be conducted. Dr. Douglas DeMaster will be the Contracting Officer for the SWFC.

MARINE MAMMAL BIOLOGY AND TECHNOLOGY PROGRAM

Beached Marine Mammals will be Autopsied for Causes of Death Through Marine Mammal Salvage Projects

Beached marine mammals which are retrieved by the Marine Mammal Salvage Project will now undergo a complete post-mortem examination to assess disease pathology and to determine the cause of death, according to John Henderson, Project Leader. Performing the examinations under contract will be Dr. Jay C. Sweeney, a Veterinarian with over 10 years of experience diagnosing marine mammal diseases. The necropsy of each animal will include histological examination of selected tissues for evidence of pathology, isolation and identification of parasites and bacterial pathogens, and, for some species, determination of heavy metal and organochlorine (pesticide) levels present in the animal.

This study marks the first time that stranded animals from San Diego County will undergo a complete examination. In past years, dead cetaceans (whales, dolphins, and porpoises) have been sampled only for routine life history data such as length, age, reproductive condition, and feeding habits, while dead pinnipeds (seals and sea lions) have been largely ignored. The study will attempt to determine the nature and extent of naturally occurring diseases, as well as to document trauma-induced death which may be related to marine mammal interactions with fisheries.

Report on Behavior of Hawaiian Spinner Dolphins Received

A preliminary report has been received on the behavior of Hawaiian spinner dolphins. The report, authored by the contracted U.C. Santa Cruz research team, summarizes the types of data that have been collected during the period of the contract and the analyses planned for the final report, which will be received by February 1981. The present document contains preliminary analyses of several data sets, including such items as daily aerial activity levels, behavior relative to vessels and movements of groups of animals and individuals. The preliminary analyses show that the aerial activity level is a function of the time of day, with two peaks that occur during daylight hours. Hawaiian spinner schools are very fluid in nature. Individually identifiable animals sometimes observed in the same school, were also found in separate schools, in which they remained for long periods of time before rejoining their original group. The numbers of animals in aggregations varied considerably from day to day. Another finding was that the behavior of schools relative to the approach of vessels varied with school size and time-of-day. In particular, schools of less than 10 animals were very hard to approach. This is of potential importance in assessing the relative accuracy of estimates of school size obtained by various methods in the eastern tropical Pacific. All findings presented in the preliminary report are subject to modification when the rest of the data have been incorporated into the analyses.

Scientists Begin Behavior Studies of Common Dolphins in the Tuna Purse Seine Fishery

Scientists are extracting data from the computerized data bases for an analysis of fishing strategies and dolphin behavior during purse seine sets in which common dolphins, Delphinus delphis, are the target species. Common dolphin mortality rates are 3-4 times higher than the rate for the spotted dolphin, Stenella attenuata. The analysis will compare the duration of chase, amounts of fish caught, and rescue effort in an attempt to quantify differences between sets on common dolphins and sets on spotted dolphins. The analyses will be carried out jointly by Fishery Biologists J. Coe and W. Stuntz as part of the preliminary preparations for a planned investigation into reasons for differential mortality rates for various species.

Hawaiian Spinner Dolphins Injected with Tetracycline for Tooth-Layer Calibration

As part of a one-year experiment to define growth rates of teeth in the spinner dolphin, A. Myrick, Wildlife Biologist, traveled to Hawaii to participate in a tetracycline-injection and tooth-pulling session. The animals (3 at present) are maintained and monitored by Sea Life Park under contract to SWFC. While at Sea Life Park, Myrick searched the records of the facility for information on medical treatments, feeding regimes, etc. pertaining to the three live spinners and other dolphins for which tooth samples are available. The contracted portion of the study will be completed in 6 months.

Contract Awarded for Extending Computer Simulation of Purse Seining

Jim Coe, Leader of the Marine Mammal Technology Project, reported that the firm of Beers Associates, Inc. was awarded a $58,025 contract to continue development of a computer model of purse seining. The purpose of this contract is to research and extend the existing numerical simulations of the purse seine process that have been previously developed by another contractor. The present simulation model is capable of adequately modeling simple net behavior under the influence of gravity, buoyancy, currents, and induced forces such as net setting from a vessel and the hauling in of cables attached to the net. Goals are to improve and extend the system of differential equations for the simulation, so that it is capable of smooth transitions from one phase of the seining process to the next. This will necessitate a modularization of the simulation's design to facilitate the restructuring of the differential equation systems at each change in the geometry of the problem being simulated. This same modularization will also be expected to enable users to specify, for each run of the simulation, a series of calculated parameters to be output as hard copy at the completion of the run. This capability is essential for adequate evaluation of the performance of the net design being simulated and will be as general and flexible as possible.

Further, the mathematical structure presently configured cannot handle the problem of contact and cross-over of simulated sliding rings on a cable that is being drawn in. This problem and any others associated with its occurrence will be solved in such a way that the user is not required to recognize and remedy the problem during a simulation run. The code that is produced as a result of this contract will be capable of making the transition from net setting to rings up and also permit modeling of net roll-in and the backdown procedure.

A complete report of the work done, including flow diagrams and code documentation and a presentation of he mathematics included, will be delivered to SWFC at the end of the contract period. A magnetic tape of the complete revised code will also be provided.

TIBURON LABORATORY

FISH COMMUNITIES INVESTIGATION

Scientists Compare Nearshore Fish Communities in Southeastern Alaska with those in California and Hawaii

Because the structure of a community reflects the local environment, many forces that determine community structure are best identified by comparing ecosystems. Therefore, an important aspect of the Fish Communities Task activities has involved comparing circumstances of tropical, warm-temperate, and cold-temperate habitats. In August, Investigation Leader Dr. Edmund S. Hobson and Fishery Biologist Tony Chess spent a week examining community structure in coastal waters of southeastern Alaska. Working from the research vessel, Searcher, they visited areas near Sitka and Redfish Bay, on Baranof Island.

Despite the great distance between them, the Alaskan communities more closely resemble those in northern California than do the relatively nearby communities of southern California. This was expected because both southeastern Alaska and northern California are in the cold-temperate Pacific, separated from warm-temperate southern California by the distinct marine biogeographic break in central California. Nevertheless, major differences do exist between the Alaskan and northern Californian communities. For example, the predominant rockfish in nearshore waters of northern California, Sebastes mystinus (the blue rockfish), was not seen in the Alaskan habitats, whereas Sebastes ciliatus (the dusky rockfish), and S. emphaeus (the Puget Sound rockfish), were among the dominant forms in the Alaskan habitats but have not been see by Task members in California. The most numerous rockfish in the Alaskan habitats, however, Sebastes melanops (the black rockfish, Figure 1), is also a major form in northern California. The invertebrate components of the community similarly show close ties to those in northern California, although samples taken by airlift have not yet been fully analyzed.

Despite the general richness of the Alaskan communities, the number of fish species is lower at these higher latitudes. This trend is consistent with comparisons made earlier between tropical Hawaiian and warm-temperate southern Californian communities. Thus, in 12 25-m transect lines placed in representative Alaskan habitats following procedures established earlier, a mean of seven species (range 4-9) were counted. In comparison, transects established the same way in tropical Hawaiian habitats usually yielded between 25 and 35 species, and those in warm-temperate Californian habitats between 10 and 15.

Figure 1. School of black rockfish, Sebastes melanops, in a nearshore kelp forest at Baranof Island, southeastern Alaska.

FISHERIES DEVELOPMENT INVESTIGATION

Octopus Continue to be Considered for Possible Fishery

Lieutenant Patrick Rutten of the NOAA Corps traveled to Point Arena, California, on August 14, to fish for octopus, but rough weather forced postponement of fishing trials. The octopus traps will be set by a cooperating fisherman. Biological Aid Susan Pollock continues to fabricate octopus traps of varied design, under Lieutenant Rutten's direction.

Two giant octopus (Octopus dofleini), weighing a total of 26 pounds, were purchased at Fort Bragg, California, and processed "Japanese-style" here at the Tiburon Laboratory. Taste tests by laboratory personnel elicited a nearly unanimous vote of approval. Samples were given to a fish broker, who will distribute the octopus to various wholesale and retail outlets. Preliminary evaluation by the broker was promising, but the appearance and texture of the octopus needs to be improved. The present price of $0.45/pound ex-vessel appears to leave enough margin for processors to provide a cooked product to the Japanese market. This price, however, is paid to fishermen for octopus as a by-catch in the trawl and crab fisheries. It is necessary to learn the price at which a directed fishery would be profitable to fishermen. Octopus dofleini is not considered a highly desirable species by the Japanese market, possibly, in part, because of its high water content. Total shrinkage from live weight to the final cleaned, boiled product was nearly 50%; other species of octopus probably yield about 65-75% of the product.

Bids Requested from Commercial Fishermen to Catch Shortbelly Rockfish

Bids were requested from commercial fishermen for a vessel charter to catch shortbelly rockfish. Only one bid was received, and that was from a pair-trawler (two boats working in conjunction). During the cruise it is anticipated that several tons of shortbelly rockfish will be caught for market trials. Another objective will be to test the efficiency of the experimental off-bottom trawl, especially with regard to amount of by-catch.

King Salmon Return to Rearing Site at the Tiburon Laboratory

Beginning this year, the salmon rearing project at the Tiburon Laboratory has been taken over by the Tyee Club, a sport fishermen's group which will handle all financing and labor. Tiburon will

provide facilities and advisory services and continue to monitor the returns of previously released fish. On August 22, during the first fishing attempt this season, biologists caught a 12-pound (5.5 kg) female king salmon in the gill net that was set near the rearing site at the Tiburon Laboratory. Fishery Biologist Daniel Ralph reported that the fish was one of those tagged and released from here during the fall of 1978. Steady activity of recreational fishing boats in front of the Laboratory the past 2 weeks indicates presence of king salmon. Local fishermen may also be interested in the presence of steelhead in the Bay; three have been caught in two sets of the gill net by Tiburon staff.

On August 18 and 19, the California Department of Fish and Game staff delivered 108,000 king salmon (averaging 17.5 gm) to holding pens at the Laboratory. Fifty-thousand of these salmon, from the Feather River Hatchery, were nose-tagged. They will be reared for approximately 2 months and then released into the Bay.

PHYSIOLOGICAL ECOLOGY INVESTIGATION

Suitable Habitats Explored for Rearing of Striped Bass Larvae

Mickey Eldridge, Brian Jarvis, Mark Kobe, and Karen Taberski traveled for 2 days through the Montezuma Slough and up the Sacramento River exploring the natural nursery areas of striped bass larvae. The purpose of the cruise was to locate suitable sites for experimental habitats in which to rear striped bass larvae. Specially designed floating pens have been constructed and will be placed in the field to test their suitability.

Preparations Completed for New Experiments on Effects of Benzene on Young Striped Bass

Preparations were completed for a round of new laboratory experiments on the histopathological effects of benzene on young-of-the-year striped bass. The object is to determine what pathological effects benzene induces in various tissues of striped bass at acute, high-level sublethal, and low-level sublethal concentrations. Procedures and analyses were worked out in conjunction with research taking place at the University of California, School of Medicine, Davis, California.

SOUTHWEST REGIONAL DATA MANAGEMENT AND ADP OPERATIONS

System Study Completed for West Coast Fishery Information Network

Fred Kellenberger, Data Systems Manager for the Southwest Fisheries Center, reported that the system study for the West Coast Fishery Information Network (FIN) has been completed by the General Services Administration (GSA). The SWC contracted with GSA for the study with funds from the Northwest Region/Northwest Center (NWR/NWC) and the Southwest Region/Southwest Center (SWR/SWC). The study analyzed the feasibility of merging west coast fishery catch data for transmission to various fishery managers. The study presented different ways to store and transmit summarized data. The West Coast Data Goals and Guidelines Committee received the final report on August 22, 1980 and recommended that the NWC Burroughs Computer System be used as the central processor for the West Coast FIN, and that a Data Manager be hired to oversee the development and implementation of the West Coast FIN.

First Draft of the ADP Requirement Study Received

A first draft of the ADP Requirement Study for SWC and SWR by Systems Architects, Inc. (SAI) was received the first week of August. The draft is based on information provided through interviews and data collection forms. Six out of 10 alternatives were selected for presentation, each including information on personnel, facilities, communications, training, conversion costs, backup security, procurement consideration and system life costs. The six alternatives are:

1. In-house minis in La Jolla and Hawaii and upgraded remote job entry (RJE) station in Tiburon with continued use of university and research computing resources.

2. Use of Northwest and Alaska Fisheries Center (NWC) Burroughs - all workload.

3. Use of NWC Burroughs with minis in La Jolla and Hawaii.

4. Use of ADP Network Service - all workload.

5. Use of ADP Network Service with ADP's ONSITE mini at La Jolla and Hawaii.

6. Use of ADP Network Service and supplement with remote minis at La Jolla and Hawaii.

The data committee members who reviewed the draft report include Fred Kellenberger, Dorothy Roll, Robert Butler, Chuck Oliver, Rich Charter, Al Coan, George Liao, Nancy Wiley and Doug McLain. The committee agreed that although the report satisfys the specifications for the study, some areas need clarification and several requirements that were assumed should be addressed formally. The comments were forwarded on August 21, 1980, to SAI to help with preparation of the final report.

Response Favorable to First Computer Users Group

Dorothy Roll reports favorable responses to the first computer users group meeting on August 19. At a general users meeting in July, it was determined that a meeting be held the third Tuesday of each month as a means of sharing technical information. Data transfer was discussed in the August meeting. Users who have developed and use data transfer techniques between the numerous host computers and host computers to intelligent terminals gave a short oral presentation of the transfer procedures. Documentation of the transfer process was given the attendees. The procedures presented were:

1. Disk-to-disk transfer between INFONET, Burroughs and VAX by Joseph Caruso.

2. HP2645A to Burroughs 7800 by Robert Nydam.

3. Tektronics data transfer by Rich Charter.

4. INFONET to UCSD's CATT system by Robert Butler.

5. Universal tape format by Oden Burris.

6. Shipboard ORION system by Mark Sullivan.

The executive computer conference system (Executive CONFER) for exchanging information communications among and between the NMFS Directors was officially implemented the week of August 25. To facilitate the practice sessions for Frances Tonsich at SWFC and Leona Stevenson at SWR on the use of CONFER, Dorothy Roll drafted a step-by-step procedure for retrieving and writing on the system.

* * * * * * * * * *

On August 11, Fred Kellenberger and Robert Butler met with officials of the SWR and the California Department of Fish and Game (CF&G) on the Pacific Cooperative Enforcement System (PACES). They reviewed the usage of the system by field personnel and reviewed the system's operational costs. A trouble report sheet was designed and the PACES Users Manual was updated. These documents were mailed to all PACES users on August 21.

MISCELLANEOUS

SEMINARS

La Jolla Laboratory

August 19 - Dr. David J. DeMaster, Assistant Professor of the Department of Marine Sciences and Engineering at North Carolina State University, Raleigh, North Carolina, spoke on "Water column productivity and the marine silica budget."

PRESS RELEASE

Fisheries Library Dedicated to Southwest Fisheries Center

With the unveiling of a small bronze plaque, Margaret D. Ahlstrom, widow of the late Fishery Biologist, Dr. Elbert Halvor Ahlstrom, officially dedicated his personal library at the National Marine Fisheries Service, Southwest Fisehries Center at La Jolla, California during a brief ceremony on August 7, 1980.

Dr. Ahlstrom's library was accumulated during a distinguished career of 40 years with the National Marine Fisheries Service and its predecessor agencies and reflected his consuming interest in ichthyology, particularly the science of larval fish biology to which he devoted his entire professional life.

The Ahlstrom library includes more than 250 books, many of them rare and valuable volumes, 10,000 reprints, and a large collection of serials.

In accepting the library for the Southwest Fisheries Center, Dr. Izadore Barrett, Director of the Center, said that Dr. Ahlstrom had left a rich legacy of intangibles in his love of science and his willingness to share his broad knowledge and ideas with his colleagues and students. He thanked Mrs. Ahlstrom for the gift of the library which he termed a tangible expression of Dr. Ahlstrom's devotion to his profession.

The Ahlstrom Memorial Library is in daily use by the scientific staff of the Multiple Species Taxonomy Group, headed by Dr. Geoffrey Moser, and by he many visiting scientists who come to the Center for training in the larval fish identification methods pioneered by Dr. Ahlstrom.

From left: Mrs. Margaret Ahlstrom, her daughter, Mrs. Gay Speyer, and granddaughter, Ms. Claire Johnson.

PUBLIC AFFAIRS

Tiburon Laboratory

August 29 - Mickey Eldridge participated in a panel discussion on the current problems of the California striped bass population on radio station KCBS, San Francisco. The latest estimate of the incoming year class is the second lowest ever recorded. Federal, state, and private agencies are presently trying to determine the cause(s) for the decline.

VISITORS

Honolulu Laboratory

August 13 - James McCallum of Terry Leitzell's office telephoned R. Shomura to request a tour of our Kewalo facilities. McCallum was taken through the Kewalo area by Humphreys.

20 - F. Conand, ORSTOM, Noumea, New Caledonia.

- Patrick Gallenon, Tahiti Fisheries Department.

21 - J. Millard Burr, Office of the Geographer, State Department, Washington, D.C.

La Jolla Laboratory

August 4- 5 - Norwegian scientists Victor Oiestad of the University of Bergen, Norway, and Messrs. Mohsness and Danillsson of the Institute of Marine Resources, Arendal, Norway, met with Dr. Lasker and other members of the Coastal Division to discuss aquaculture.

5 - Al Atainsin from UCLA, Los Angeles, CA.

6 - Jim Cummings from Upward Bound, Harvey Mudd College.

7 - Jeff Stendorf from the Regional Youth Employment Program (REGY).

12 - John Kalish from the University of Miami, Miami, FL visited the SWFC.

Southwest Regional Data Management and ADP

August 28 - Dick Heimann and Leo Pinkas, California Department of Fish and Game.

Tiburon Laboratory

August 1 - Stu Bryan, Mill Valley, CA.

- John Foreberg, NOAA, ERL, Boulder, CO.

- Mona Janopaul, NOAA, ERL, Boulder, CO.

- Barbara Thompson, Ross Valley Reporter, San Anselmo, CA.

4 - Dr. Michael Moser, University of California, Santa Cruz, CA.

- Brian F. Stagl, University of the Pacific Marine Station, Tomales, CA.

- Tim Yoshino, Department of Zoology, University of Oklahoma, Norman, OK.

6 - Linda H. Mantel, Biology Department, City College, New York, NY.

8 - Marvin Jung, State Water Resources Control Board, Sacramento, CA.

- Kris Lindstrom, University of California, School of Medicine, Davis, CA.

- Roger Morris, NOAA vessel Ranier, Seattle, WA.

- Dr. Sefton R. Wellings, University of California, School of Medicine, Davis, CA.

11 - Samuel Lawrence, Assistant Administrator for Management and Budget, NOAA, Washington, DC.

20 - Matt Bowman, San Rafael, CA.

- Martin Hochman, NOAA, Terminal Island, CA.

22 - Stuart Finkelstein, San Francisco State University, San Francisco, CA.

- Hal Markowitz, San Francisco State University, San Francisco, CA.

- Diane Reiss, Temple University.

- Dr. Erwin Seibel, Director, Tiburon Center for Environmental Studies, San Francisco State University, Tiburon, CA.

- Chuck Watson, California Department of Fish and Game, Sacramento, CA.

25 - Ken Evans, Mill Valley, CA.

- Dave Hoagland, Oregon State University.

- Frank J. Migaiolo, Alta Loma, CA.

26 - Michael Manson, California Division of Mines and Geology, San Francisco, CA.

27 - Keith R. Anderson, California Department of Fish and Game, Menlo Park, CA.

- Christopher M. Dewees, University of California (Sea Grant Program), Davis, CA.

- Judd Howell, National Park Service, Fort Mason, CA.

- Milton Kolipinski, National Park Service, Fort Mason, CA.

28 - Robert M. Danziger, Southampton College, Long Island University, Southampton, NY.

- Ukio Hamaguchi, President, Hamaguchi Fishing Industry Company, Ltd., Toba-City, Mie-Pref., Japan.

MEETINGS AND TRAVEL

Honolulu Laboratory

August 1 - Richard S. Shomura returned from the Scientific and Statistical Committee, Council and ad hoc meetings held in Hilo.

2 - The Billfish Planning Team met in the HL conference room.

5 - Dr. Phillips of CSIRO, Australia, met with Shomura and Richard N. Uchida, Fishery Biologist. Dr. Phillips discussed spiny lobster-related research with the HL Insular Ecosystem personnel.

6 - Shomura and Mary Lynne Godfrey, Administrative Officer, attended a meeting at the East-West Center to review the status of our easement situation.

- A meeting of the Coordinating Council on Research in the NWHI was held in the HL conference room by Chairman Richard Grigg of HIMB. Participants included Shomura, Dr. Jack Davidson, Director of UHSG, Paul Kawamoto who represented Kenji Ego, Director of HDFG, and Dale Coggeshall, Administrator of the U.S. Fish and Wildlife Service (Pacific Islands).

6 - Shomura and Dr. Phillips met with fishing industry members at United Fishing Agency (UFA). In addition to Frank Goto of UFA, industry members included Brooks Takenaka of UFA and Jed Inouye of Honolulu.

8 - Shomura attended the Townsend Cromwell pre- and post-cruise meetings in the HL conference room.

11 - Bjørn Aune met with Shomura to request a review and endorsement of a UH Marine Options Program project on North Equatorial Countercurrent study.

12 - Shomura and Bernard M. Ito attended a ciguatera meeting at the Department of Health board room.

14 - Captain Skip Naftel and Dr. Paul J. Struhsaker of the Easy Rider Too, met with R. Shomura, Dr. Polovina, Moffitt, and R. Humphreys to discuss lobster data recently obtained aboard the Easy Rider Too.

18 - Catherine Morrison, Public Affairs Officers, NOAA, and Richard Poirier, Coastal Zone Management Office, Honolulu, met with R. Shomura and H. Yuen to discuss the joint celebration of NOAA's 10th anniversary and "The Year of the Coast."

20-23 - Francois Conand, Office de la Recherche Scientific et Technique Outre-Mer (ORSTOM), New Caledonia, met with Uchiyama to discuss age identification of juvenile skipjack tuna by counting daily growth rings on otoliths.

21 - Tamio Otsu, Acting Director, and M. L. Godfrey met with Joseph Alfonsi of the Corps of Engineers and A. Kimbal Thompson, Architect with Trans Oceanic Architectural Design, Ltd. They discussed Thompson's informal proposal for an architectural/engineering feasibility study of a new wing for the HL.

La Jolla Laboratory

August 5 - Dr. Barrett and Dave Mackett traveled to Terminal Island to discuss strategic plans with the Southwest Regional Director.

5- 6 - Dr. Lasker attended meetings at Scripps Institution of Oceanography regarding the Atlantic with NMFS personnel from the Northeast Center.

8 - A Monk Seal Recovery Team meeting was held in the Auditorium.

10-15 - Dr. Barrett visited Washington, D.C. to attend a Board of Director's meeting.

11 - Fred Kellenberger and Robert Butler traveled to Long Beach to attend a meeting with the Region and State Fish and Game officials on the PACES system. They reviewed the usage of the system by the field personnel, the operational costs and methods for reducing computer costs.

8-11 - Jim Squire traveled to Kailua, Kona, Hawaii.

11-12 - Dr. R. Lasker traveled to Santa Barbara, CA to attend a Bureau of Land Management (BLM) meeting on Environmental Impact Statement (EIS) for the proposed Outer Continental (OCS) lease sale #68.

18 - Dan Huppert attended a meeting of Pacific Fishery Management Council social scientists at the NWAFC in Seattle. The participants discussed ways of improving socio-economic input into fishery management plans.

19-20 - Huppert attended a Statistical and Scientific Committee meeting in Seattle, as an alternate for Dr. Barrett.

19-22 - Fred Kellenberger traveled to Seattle to attend the Regional Data Committee meeting, the FIN meeting with personnel from California and Hawaii, and a Data Management meeting with NWC.

25 - Dave Mackett attended a Planning meeting at Terminal Island.

Southwest Regional Data Management and ADP

August 11 - Fred Kellenberger and Bob Butler traveled to Long Beach, CA to discuss PACES.

18-22 - Fred Kellenberger traveled to Seattle to meet with SWR, NWR, NWC, and state personnel to discuss data management activities.

Tiburon Laboratory

August 4- 7 - Edward Ueber traveled to Portland, Oregon, to attend the following: Pacific Fishery Management Council's Groundfish Plan Development Team Meeting, to finalize the draft of the Groundfish Plan; the Ad Hoc Committee Meeting on Pacific Ocean perch; and the Ad Hoc Committee Meeting on Logbooks.

6 - Mrs. Sharon Lundin, Chief, Employee Services, NASO, Seattle, Washington, visited the Tiburon Laboratory and gave two presentations to our employees. The morning lecture covered Performance Standards, Reorganization of the Personnel Office, and general information on the kinds of services provided by her office; and the afternoon presentation dealt with how to properly complete Federal Application Forms, Upward Mobility, how to develop career development plans, etc. Mrs. Lundin also provided seven of our employees with individual career counseling.

7 - Mickey Eldridge attended a special meeting convened by the Delta Research Team of the California Department of Fish and Game (called by Pete Chadwick) in Stockton, California. The gathering met to discuss the current striped bass population which had one of the second lowest striped bass indexes estimated this year. (The "index" measures the relative abundance of "young-of-the-year.")

8 - The Cooperative Striped Bass Study (COSBS) Meeting was held at the Tiburon Laboratory. It was attended by representatives from the University of California, Davis (Dr. Sefton Wellings); University of California, Santa Cruz (Dr. Michael Moser); State Water Resources Control Board (Dr. Gerald Bowes); and members of the Physiology staff. Mickey Eldridge hosted the meeting.

11 - Samuel Lawrence, Assistant Administrator for Management and Budget, NOAA, visited the Tiburon Laboratory. While there, he toured the facilities and discussed the Laboratory's projects with Acting Director, Sus Kato.

13-14 - Mickey Eldrigge, Brian Jarvis, Mark Kobe, and Karen Taberski traveled to the Montezuma Slough/Sacramento River areas, to locate suitable sites for experimental habitats for rearing striped bass larvae next year. They also surveyed spawning and nursery habitats of striped bass, and collected biological and water samples which will be run through the gas chromatograph to obtain physical chemical data.

19 - A San Francisco Bay Institute Meeting, chaired by Philip Meyer (Consultant, Fish and Wildlife Service), was held at the Tiburon Laboratory. This was the first of a series of meetings to be held with selected specialists, who will give opinions on the status and outlook of the Bay's biophysical, social, and economic parameters. Attendees at the meeting included: Norman J. Abramson, Pete Benville, Edward Ueber (Tiburon Laboratory); Bill Davoren, Director, Fish and Wildlife Services Bay Institute Office; Dr. Joel Hedgpeth, prominent biologist and author, Santa Rosa, California; Nina Hirsch, San Francisco State University; and William Leet, Environmental Assessment Branch, Southwest Region.

22 - Norman J. Abramson met at the Tiburon Laboratory with Hal Markowitz, Professor, Biological Sciences, San Francisco State University; and Dr. Erwin Seibel, Director, Tiburon Center for Environmental Studies (San Francisco State University), to discuss a Marine Mammal Research Program at the Tiburon Center for Environmental Studies. Other attendees at the meeting included: Stuart Finkelstein, San Francisco State University; and Biane Reiss, Temple University.

TRAINING

Honolulu Laboratory

August 29 - Virginia L. Ishida, Irene H. Toyomura, and Elizabeth F. Y. Young of the editorial staff participated in an introductory training session on the Word-11 word processor. Instruction was provided by East-West Center staff members Andrew Kokura and Jan Fong.

Tiburon Laboratory

August 21 - Maureen H. Woods, Librarian - Dialog Refresher Seminar, DIALOG, Palo Alto, CA.

PERSONNEL

Honolulu Laboratory

August 10 - Mark A. Scheele, Computer Technician, Temporary Appointment.

- Louise F. Lembeck, Clerk Typist, Temporary Appointment.

15 - Gayle K. Fujikawa, Summer Aid, Resignation.

- Thomas T. Shigeta, Summer Aid, Resignation.

19 - David L. Lau, Summer Aid, Resignation.

24 - Dorothy D. Powell, Administrative Services Assistant, Full-Time Reassignment from National Weather Service.

La Jolla Laboratory

July 25 - Gene L. Anderson, Biological Technician, Resignation.

27 - Nancy Lo, Statistician, Promotion.

August 10 - John R. Henderson, Fisheries Biologist, Promotion.

29 - James A. Renner, Fishery Biologist, Retired.

Tiburon Laboratory

August 7 - Dana C. Tryde, Biological Aid, Resignation.

12 - John Berge, Biological Aid, Resignation.

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